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TITLE: Real-time image enhancement
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Detailed Description Text - DETX (12):
With reference to FIGS. 2 and 3, specific calculations for vupper and vlower may be performed by developing an intensity value histogram for the image to be enhanced. Such an histogram divides the range of intensity values present in a given image, i.e., the range from vmin and vmax, into a plurality of sub-ranges. For each of the plurality of sub-ranges, the number of pixels in the image having intensity values in this sub-range is determined. The first moment of the histogram may be conceptualized as the "center of gravity" of the histogram. The "center of gravity, i.e. the first

moment, may be calculated by using the formula ##EQU1## where $I_{\text{sub},i}$ represents a specific intensity level, $h_{\text{sub},i}$ is the number of pixels having intensity level $I_{\text{sub},i}$, and N is the total number of intensity levels (sub-ranges). For example, intensity level 301 (FIG. 3) may be conceptualized as representing intensity level one ($I_{\text{sub},1}$), intensity level 303 may be conceptualized as representing intensity level two ($I_{\text{sub},2}$), and intensity level 319 may be conceptualized as representing intensity level ten ($I_{\text{sub},10}$). In this example, there are ten intensity levels (i.e., ten sub-ranges), so N is equal to 10.

Claims Text - CLTX (11):

(i) developing a luminance value histogram for the image to be enhanced by dividing the range from v_{\min} and v_{\max} into a plurality of sub-ranges such that, for each of the plurality of sub-ranges, the number of pixels in the image having luminance values in this sub-range is calculated; the **center of gravity** of the luminance value **histogram** being defined as the first moment and being indicative as to the relative over- or under-exposure of the image, such that the first moment is relatively closer to v_{\min} than to v_{\max} for an underexposed image and relatively closer to v_{\max} than to v_{\min} for an overexposed image; and